

PATENT SPECIFICATION

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(54) ALARM APPARATUS

(71) I, RENE LIOU TCHEN SAN, of French nationality, of 10 rue Kellog, Suresnes 92100, France, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to alarm apparatus.

It is known to use metal housings to protect the hooters of burglar or fire alarm systems for example, from being tampered with. These housing have openings to allow propagation of the sound produced by the hooters inside.

In burglar or fire alarm systems, hooters are usually outside the detection zone and metal housings protecting them are fixed with them on to the outside walls or roofs or protected buildings. These housings are usually equipped inside with microswitches which energise the hooter when an attempt is made to remove the housing.

Sabotage is often attempted by sealing off the openings of such housings, thus considerably reducing, or totally preventing, propagation of the sound produced by the hooters. This type of tampering, without any attempt to remove the housing, is not prevented by the present automatic protection described.

According to the invention there is provided alarm apparatus comprising alarm indication producing means, a housing for the said means, a support frame for the housing, the housing being resiliently mounted on the support frame, and a contact switch between the housing and the support frame, the apparatus being such that the switch may be actuated by a relative displacement between the housing and the support frame to cause operation of the said means to produce an alarm indication.

The housing could be of metal or other rot-proof material.

The said means could comprise an audible alarm producer, the alarm indication being an audible alarm sound produced thereby and the housing having

openings for the propagation of such an alarm sound.

The switch could unite the housing and the support frame.

The housing could be resiliently mounted on the support frame by means of springs.

The housing could enclose the support frame.

There could be a plurality of such contact switches.

If the said means comprises an audible alarm producer, this alarm producer could be enclosed by the housing.

The invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 shows a support frame for supporting a housing of alarm apparatus,

Figure 2 shows a housing for mounting on the support frame shown in Figure 1,

Figure 3 shows the support frame and the housing shown in Figures 1 and 2 joined together in alarm apparatus, and

Figures 4 and 5 each show different alternatives of the support frame and housing shown in Figures 1 and 2 respectively.

Referring to Figure 1, a support frame has fixing holes 1 and horizontal flanges 2 on which are fixed springs 3 for providing support for a displaceable housing which forms part of alarm apparatus. The "depth" of the frame allows such a displaceable housing to move forwards and backwards when any pressure is exerted on its front. This "depth" is provided by a simple fold which has dimension varying between 5 and 30 mm. A large opening 5 in the back 4 of the frame is used for securing the fixing clip of a hooter.

The support frame dimensions are less than those of the displaceable housing, the difference between them being determined according to the lateral and vertical displacement of the displaceable housing which are permitted by the springs 3. The margin between these dimensions may vary between 10 and 100 mm.

Referring to Figure 2, the displaceable housing, made of metal or rot-proof plastics

material, is shown, all the sides of which may have openings to permit the propagation of alarm sounds. The top and bottom of the displaceable housing have no openings but have bosses 6 for receiving respective ends of the spring 3, thus providing a supple and resilient contact with the support frame.

Figure 3 shows the housing enclosing a hooter 7 and microswitch contacts 8 between and uniting the fixed support frame and the displaceable housing. The details of the microswitch contact 8 will not be described here as they may be of known form. Opening of any of the switches 8 due to displacement of the housing (for example as a result of tempering) cause via electrical circuitry energisation of the hooter to produce an alarm sound. For example, any attempt to sabotage the alarm apparatus by applying semi-liquid or solid products on to the exterior of the displaceable housing causes lateral, vertical or horizontal displacements of the housing, which displacements interrupt the microswitch contacts producing immediate energisation of the hooter.

Figure 4 show a displaceable housing made of open metalwork.

Figure 5 shows an elliptical displaceable housing.

Both Figures 4 and 5 also show different frames which are interchangeable with the different types of displaceable housing described above.

Alarm apparatus in accordance with the invention may be used in a burglar or fire alarm system and be located to protect either outside or inside a detection zone, and also in the protection of electronic equipment or control equipment.

WHAT I CLAIM IS:—

1. Alarm apparatus comprising alarm indication producing means, a housing for the said means, a support frame for the housing, the housing being resiliently mounted on the support

frame, and a contact switch between the housing and the support frame, the apparatus being such that the switch may be actuated by a relative displacement between the housing and the support frame to cause operation of the said means to produce an alarm indication.

2. Apparatus according to claim 1, wherein the housing is of metal or other rot-proof material.

3. Apparatus according to claim 1 or claim 2, wherein the said means comprises an audible alarm producer, the alarm indication being an audible alarm sound produced thereby and the housing having openings for the propagation of such an alarm sound.

4. Apparatus according to any preceding claim, wherein the switch unites the housing and the support frame.

5. Apparatus according to any preceding claim, wherein the housing is resiliently mounted on the support frame by means of springs.

6. Apparatus according to any preceding claim, wherein the housing encloses the support frame.

7. Apparatus according to any preceding claim, wherein there is a plurality of such contact switches.

8. Apparatus according to any preceding claim, wherein the said means is enclosed by the housing.

9. Alarm apparatus substantially in accordance with any example herein described with reference to the accompanying drawing.

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COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of
the Original on a reduced scale*

FIG. 2

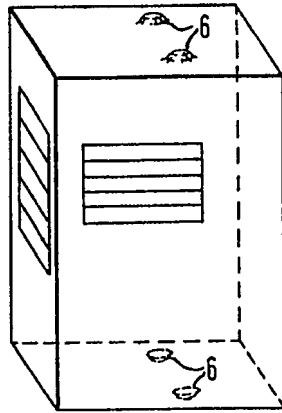


FIG. 1

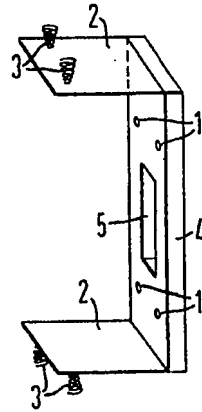


FIG. 3

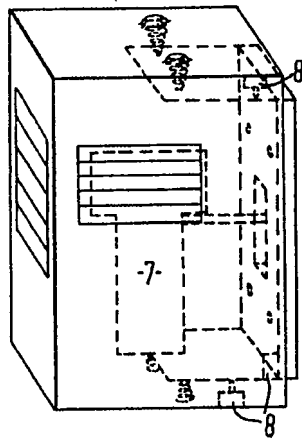


FIG. 4

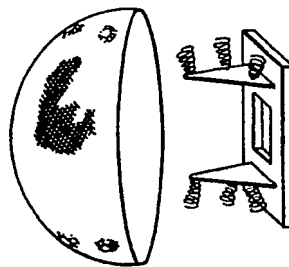


FIG. 5

